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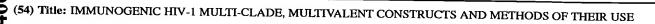
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



(57) Abstract: Described herein are nucleic acid molecules which encode multiple highly conserved epitopes from HIV-1 proteins, and optionally also epitopes from CCR5; usually also included sequences that encode spacers between two or more of the epitopes. Some of the provided nucleic acid molecules further include sequences that encode targeting domains, useful for targeting the encoded protein into a pathway for enhancing epitope presentation in a vertebrate immune system. Also described are multivalent proteins encoded for by these nucleic acid molecules. The disclosure also encompasses immunogenic compositions that comprise one or more of the nucleic acid molecules, and/or one or more of the proteins encoded thereby, as well as methods of inducing an immune response against HIV-1 in a subject by administering to the subject an effective amount of a composition containing one or more of these molecules. Also provided are cultured host cells containing within them one or more of the described nucleic acid molecules.



INTERNATIONAL SEARCH REPORT

Intq nal Application No PC I / US 2004/009767

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A. CLASSI IPC 7	IFICATION OF SUBJECT MATTER C07K14/16 A61K39/21						
According to	o International Patent Classification (IPC) or to both national classif	ication and IPC					
B. FIELDS	SEARCHED						
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	ilon searched other than minimum documentation to the extent that						
	Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EPO-Internal, BIOSIS, WPI Data, Sequence Search, MEDLINE						
С. DOCUMI	ENTS CONSIDERED TO BE RELEVANT						
Category °	Citation of document, with Indication, where appropriate, of the re	elevant passages	Relevant to claim No.				
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<u> </u>	er documents are listed in the continuation of box C.	χ Patent family m	nembers are listed in annex.				
 Special categories of clied documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the International filling date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filling date but later than the priority date claimed 		 'T' later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention. 'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone. 'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. '8' document member of the same patent family 					
	December 2004		of mailing of the international search report $11/01/2005$				
Name and m	railing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3018	Authorized officer Young, C					



In Inal Application No PCT/US2004/009767

		
C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Calegory	Olicitor of document, that indication, more appropriate	
X	SINGH RANA A K ET AL: "Generation of genome-wide CD8 T cell responses in HLA-A*0201 transgenic mice by an HIV-1 ubiquitin expression library immunization vaccine." JOURNAL OF IMMUNOLOGY, vol. 168, no. 1, 1 January 2002 (2002-01-01), pages 379-391, XP002308576 ISSN: 0022-1767 the whole document	1-26
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INTERNATIONAL SEARCH REPORT

national application No.

PCT/US2004/009767

Вох	No. I	Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)
1.	With	th regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed ention, the international search was carried out on the basis of:
	a.	type of material X a sequence listing table(s) related to the sequence listing
	b.	format of material X In written format X in computer readable form
	c.	time of filling/furnishing X contained in the international application as filed filed together with the international application in computer readable form furnished subsequently to this Authority for the purpose of search
2.	х	In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3.	Addit	ditional comments:

INTERNATIONAL SEARCH REPORT

Int onal Application No

			nation on patent family me				2004/009767
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